

COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Piedmont Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Virginia Electric and Power Company
Dominion – Darbytown CT Station
6001 Fergus Boulevard, Richmond, Virginia
Permit No. PRO50997

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Virginia Electric and Power Company has applied for a Title V Operating Permit for its Dominion – Darbytown CT Station facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact: _____ Date: _____
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FACILITY INFORMATION

Permittee

Virginia Electric and Power Company
5000 Dominion Boulevard
Glen Allen, Virginia 23060

Facility

Dominion – Darbytown CT Station
6001 Fergus Boulevard
Richmond, Virginia 23231

County-Plant Identification Number: 51-087-0156

SOURCE DESCRIPTION

NAICS 221112 – Electric Power Generation
SIC 4911 – Electrical Services

The Virginia Electric Power Dominion – Darbytown CT Station is an electric power generation facility. Natural gas is received via gas pipelines to operate up to four General Electric Model PG711-EA simple cycle turbines each rated at 1,308 MMBtu/hr on natural gas. No. 2 fuel oil is also available to fire any or all of the turbines, which are rated at 1,250 MMBtu/hr on No. 2 fuel oil.

The turbines were originally installed in 1989 and all turbines are subject to the requirements of 40 CFR 60, Subpart GG. The facility is a Title V major source of SO₂ and NO_x pollutants. This source is located in an attainment area for all pollutants and is a minor source under PSD regulations. The area is a VOC control area with an EPA approved maintenance plan. The facility was originally permitted under a NSPS permit issued on September 7, 1989. Since then, this permit and the Title V permit have been amended as follows:

- May 1, 2000 - The facility was modified to add inlet air-cooling.
- January 10, 2003 - Permit amended to clarify ambiguous terms relating to the operation of the inlet air cooling system.
- June 1, 2003 – Title V issued.
- December 1, 2003 – Title V amended to add NO_x Budget Program.
- September 16, 2004 – Title V amended to further clarify periodic monitoring of the turbines.
- May 27, 2005 – Permit amended to add in Appendix A from NSPS, Subpart GG.
- July 14, 2005 – Title V amended to add in Appendix A from NSPS, Subpart GG.
- March 28, 2008 – Permit amended to install and operate wet compression systems.

COMPLIANCE STATUS

A full compliance evaluation of this facility, including a site visit, has been conducted. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Fuel Burning Equipment							
ES-1a	EP-1	General Electric PG7111-EA Turbine Unit 1 firing gas	1308 MMBtu/hr	water injection	CD-1	NO _x	3/28/08
ES-1b	EP-1	General Electric PG7111-EA Turbine Unit 1 firing oil	1250 MMBtu/hr	water injection	CD-1	NO _x	3/28/08
ES-2a	EP-2	General Electric PG7111-EA Turbine Unit 2 firing gas	1308 MMBtu/hr	water injection	CD-2	NO _x	3/28/08
ES-2b	EP-2	General Electric PG7111-EA Turbine Unit 2 firing oil	1250 MMBtu/hr	water injection	CD-2	NO _x	3/28/08
ES-3a	EP-3	General Electric PG7111-EA Turbine Unit 3 firing gas	1308 MMBtu/hr	water injection	CD-3	NO _x	3/28/08
ES-3b	EP-3	General Electric PG7111-EA Turbine Unit 3 firing oil	1250 MMBtu/hr	water injection	CD-3	NO _x	3/28/08
ES-4a	EP-4	General Electric PG7111-EA Turbine Unit 4 firing gas	1308 MMBtu/hr	water injection	CD-4	NO _x	3/28/08
ES-4b	EP-4	General Electric PG7111-EA Turbine Unit 4 firing oil	1250 MMBtu/hr	water injection	CD-4	NO _x	3/28/08

EMISSIONS INVENTORY

Emissions from the 2006 calendar year are summarized in the following tables.

2006 Actual Emissions					
2006 Criteria Pollutant Emission in Tons/Year					
Emission Unit	VOC	CO	SO ₂	PM ₁₀	NO _x
ES-1a	0.23	0.005	0.38	0.21	13.58
ES-1b	0.004	0.06	1.90	0.04	2.73
ES-2a	0.22	0.005	0.36	0.20	16.77
ES-2b	0.002	0.03	1.13	0.02	0.94
ES-3a	0.26	0.005	0.42	0.24	19.85
ES-3b	0.0002	0.003	0.09	0.002	0.02
ES-4a	0.24	0.005	0.38	0.21	17.93
ES-4b	0.0002	0.002	0.08	0.002	0.004
Total:	0.96	0.12	4.74	0.92	71.82

No significant HAP emissions.

EMISSION UNIT APPLICABLE REQUIREMENTS – ES-1a, ES-1b, ES-2a, ES-2b, ES-3a, ES-3b, ES-4a, and ES-4b

There are three sources of specific applicable requirements for the simple cycle combustion turbines: The 3/28/08 Article 6 NSR permit, 40 CFR 60, Subpart GG, and 40 CFR Part 75.

Dominion – Darbytown CT Station is subject to NSPS, Subpart GG since they meet the applicability requirement stated in 40 CFR 60.330 as being a stationary gas turbine, constructed after October 3, 1977, and are greater than 10 MMBtu/hr (based on the lower heating value of the fuel fired). They are applicable to Part 75 because they are “subject to a state or federal NO_x mass emission reduction program” (i.e. the NO_x Budget Program) as stated in the applicability section.

A. Limitations

3/28/08 Article 6 NSR permit and NSPS, Subpart GG Conditions:

1. Nitrogen oxide emissions from the simple cycle combustion turbines shall be controlled by the utilization of water injection when firing natural gas and No.2 distillate fuel oil. The simple cycle combustion turbines shall be provided with adequate access for inspection.
(9 VAC 5-80-110, 9 VAC 5-50-260, 40 CFR 60.332, and Condition 3 of the 3/28/08 Permit)
2. Sulfur dioxide emissions from the simple cycle combustion turbines shall be controlled by the use of low sulfur fuels.
(9 VAC 5-80-110, 9 VAC 5-50-260, 40 CFR 60.333 and Condition 4 of the 3/28/08 Permit)
3. Particulate matter emissions from the simple cycle combustion turbines shall be controlled by the use of clean burning fuels and good combustion operating practices.
(9 VAC 5-80-110, 9 VAC 5-50-260, and Condition 5 of the 3/28/08 Permit)
4. Volatile organic compounds and carbon monoxide emissions from the simple cycle combustion turbines shall be controlled by the use of good combustion practices.
(9 VAC 5-80-110, 9 VAC 5-50-260, and Condition 6 of the 3/28/08 Permit)
5. To comply with the short-term emissions limits in this permit, the control system for each inlet air cooling system and each wet compression system shall be programmed with interlocks such that each cooling system can only be operated when the ambient air temperature exceeds 60° F and the associated turbine is operating at a load that exceeds 60 megawatts.
(9 VAC 5-80-110, 9 VAC 5-80-1180, 9 VAC 5-50-260, 9 VAC 5-50-20 C, and Condition 7 of the 3/28/08 Permit)
6. The Inlet Air Conditioning Systems and the Wet Compression Systems, for each of the four gas turbines, shall only be used when the combustion turbines are operating at 60 megawatts or greater.
(9 VAC 5-80-110, 9 VAC 5-80-1180, 9 VAC 5-50-260 and Condition 13 of the 3/28/08 Permit)
7. The approved fuels for the simple cycle combustion turbines are pipeline quality natural gas (primary fuel) and No. 2 distillate fuel oil (back-up fuel). Distillate oil is defined as fuel oil that meets the specifications for Fuel Oil Numbers 1 or 2 under the American Society for Testing and Materials, ASTM 396-78 Standard Specification for Fuel Oils, or other approved ASTM method, incorporated in 40 CFR 60 by reference. A change in the fuels may require a permit to modify and

operate.

(9 VAC 5-80-110, 9 VAC 5-80-1100, and Condition 14 of the 3/28/08 Permit)

8. The maximum sulfur content of the natural gas to be burned in the simple cycle combustion turbines shall not exceed 0.06 weight percent.
(9 VAC 5-80-110, 9 VAC 5-80-1100, 9 VAC 5-50-260, and Condition 16 of the 3/28/08 Permit)
9. The maximum sulfur content of the oil to be burned in the simple cycle combustion turbine shall not exceed 0.20 weight percent per shipment (as defined in Appendix A). The maximum Fuel Bound Nitrogen (FBN) content of the oil to be burned in the simple cycle combustion turbine shall not exceed 0.05 weight percent per shipment (as defined in Appendix A).
(9 VAC 5-80-110, 9 VAC 5-170-160, 9 VAC 5-50-260, and Condition 17 of the 3/28/08 Permit)
10. The four simple cycle combustion turbines combined shall not consume more than the quantity of natural gas and No. 2 distillate oil fuel annually, calculated monthly as the sum of each consecutive 12 month period, as follows:
 - a. Natural gas – 3,100,000,000 scf annually when firing natural gas 100% of the time.
 - b. No. 2 distillate oil – 13,600,000 – 2,100,000 * (FBN – 0.015)/0.035 gallons annually when firing No. 2 distillate oil 100% of the time. Fuel Bound Nitrogen (FBN) is equal to % FBN by weight annual average, but not less than 0.015% firing No. 2 distillate oil 100% of the time.
 - c. When the four simple cycle combustion turbines are firing both No. 2 distillate oil and natural gas during the period individually or in combination, the annual consumption shall be limited by the following equation to limit NO_x and SO₂ to less than 250 tons per year, where: (scf natural gas used/ 3,100,000,000 scf) + (gallons of No. 2 distillate oil used/ No.2 distillate oil limit in gallons from b.) is less than or equal to 1.
(9 VAC 5-80-110, 9 VAC 5-80-1100, and Condition 15 of the 3/28/08 Permit)
11. Short-term emission limits from the operation of each simple cycle combustion turbine while fired on natural gas shall not exceed the limits specified below (except during start-up, shutdown and malfunction conditions):

Particulate Matter		6.3 lbs/hr
PM-10		6.3 lbs/hr
Sulfur Dioxide	5.1 x 10 ⁻² lbs/MMBtu	66.0 lbs/hr
Nitrogen Oxides (as NO ₂)	42 ppmdv @ 15% O ₂	199.4 lbs/hr
Volatile Organic Compounds		2.0 lbs/hr
Carbon Monoxide		26.5 lbs/hr

(9 VAC 5-80-110, 9 VAC 5-50-260, 40 CFR 60.332-3, and Condition 18 of the 3/28/08 Permit)

12. Short-term emission limits from the operation of each simple cycle combustion turbine while fired on No. 2 distillate fuel oil shall not exceed the limits specified below (except during start-up,

shutdown and malfunction conditions):

Particulate Matter		12.5 lbs/hr
PM-10		12.5 lbs/hr
Sulfur Dioxide	2.0×10^{-1} lbs/MMBtu	253.7 lbs/hr
Nitrogen Oxides (as NO ₂)	65* ppmdv @ 15% O ₂	321.6 lbs/hr
*(Fuel Bound Nitrogen less than 0.015% by weight)		
Nitrogen Oxides (as NO ₂)	77** ppmdv @ 15% O ₂	381.4 lbs/hr
**(Fuel Bound Nitrogen less than or equal to 0.05% by weight)		
Volatile Organic Compounds		6.3 lbs/hr
Carbon Monoxide		28.6 lbs/hr

(9 VAC 5-80-110, 9VAC 5-50-260, 40 CFR 60.332-3, and Condition 19 of the 3/28/08 Permit)

13. The terms "start-up" and "shutdown" shall be defined as follows:

Start-up: The period, for each unit start command, from the beginning of "warm up" control mode or from the point a restart is issued for a running unit in shutdown mode and continuing to the end of the first hour of water injection logging for NO_x control.

Shutdown: The period, for each unit stop command, from when the control "shutdown" mode begins and continuing until no fuel is being combusted or until a restart command is received, whichever occurs first.

(9 VAC 5-80-110, 9 VAC 5-170-160, and Condition 20 of the 3/28/08 Permit)

14. Visible emissions from the simple cycle combustion turbines shall not exceed ten percent (10%) opacity except during one six-minute period in any one hour in which visible emissions shall not exceed thirty percent (30%) opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction. (9 VAC 5-80-110, 9 VAC 5-50-260, 9 VAC 5-50-80 and Condition 22 of the 3/28/08 Permit)

15. Except where this permit is more restrictive than the applicable requirement, the simple cycle combustion turbines shall be operated in compliance with all applicable requirements of 40 CFR Part 60, Subpart GG, Standards of Performance for Stationary Gas Turbines. (9 VAC 5-80-110, 40 CFR 60.330, and Condition 23 of the 3/28/08 Permit)

16. Except where this permit is more restrictive than the applicable requirement, the combustion turbine generating station shall comply with all applicable provisions of 40 CFR Part 75. (9 VAC 5-140-10 et seq. and 40 CFR 75)

Title V Condition

17. Combustion turbine emissions shall be controlled by proper operation and maintenance. Turbine operators shall be trained in the proper operation of all such equipment. Training shall consist of a

review and familiarization of the manufacturer's operating instructions, at minimum.
(9 VAC 5-80-110 and 9 VAC 5-50-20)

****Note:** *It is the practice of the Virginia Department of Environmental Quality to require in permits conditions that the emission sources, such as fuel burning equipment, be operated in a proper manner. The proper operation stipulation has been added to the federal operating permit for completeness.*

Facility Wide Conditions

18. The total annual emissions from the electric generating facility shall not exceed the limits specified below:

Particulate Matter	9.5 tons/yr
PM-10	9.5 tons/yr
Sulfur Dioxide	193.2 tons/yr
Nitrogen Oxides (as NO ₂)	245.5 tons/yr
Volatile Organic Compounds	4.8 tons/yr
Carbon Monoxide	32.6 tons/yr

Annual emissions calculated monthly as the sum of the previous consecutive twelve month period.
(9 VAC 5-80-110, 9 VAC 5-50-260, 40 CFR 60.332-3, and Condition 21 of the 3/28/08 Permit)

19. Except where this permit is more restrictive than the applicable requirement, the fuel oil storage tanks shall be operated in compliance with all applicable requirements of 40 CFR Part 60, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels. At the time of issuance of this permit, the only applicable requirement is to maintain and make available on site drawings and specifications documenting the dimensions and capacity of each tank, so long as the tanks are used exclusively for fuel oil.
(9 VAC 5-80-110, 9 VAC 5-50-400, 9 VAC 5-50-410, 40 CFR 60.110b, 40 CFR 60.116b, and Condition 24 of the 3/28/08 Permit)

B. Monitoring

3/28/08 Article 6 NSR permit and NSPS, Subpart GG Conditions:

1. A continuous monitoring system shall be installed and operated (as approved by the DEQ) to indicate/determine and record the hourly fuel consumption (in scf/hour and gallons/hour) and the ratio of water to fuel oil being fired in the simple cycle combustion turbine. The system shall be accurate to within ± 5.0 percent and shall be approved by the DEQ, Piedmont Regional Office (PRO). The monitoring system shall be operated at all times that water is being injected into the simple cycle combustion turbines. The monitoring system shall be maintained and calibrated in accordance with the manufacturer's specifications. A 30 day notification prior to the demonstration of continuous monitoring system performance is to be submitted to the DEQ, Piedmont Regional Office. The permittee shall maintain the records of the simple cycle

combustion turbine fuel oil consumption and ratio of water to fuel oil being fired at the site. These records shall be kept on file for the most current five-year period and available for inspection by DEQ personnel.

(9 VAC 5-80-110, 9 VAC 5-80-1180, 9 VAC 5-50-260, 9 VAC 5-50-20 C, 40 CFR 60.334, and Condition 8 of the 3/28/08 Permit)

2. The permittee shall monitor the sulfur content of the natural gas being fired in the simple cycle combustion turbines, in accordance with subpart GG of the NSPS and the US EPA custom fuel monitoring schedule, approved on July 2, 1998. These records shall be available on site for inspection by the DEQ and kept on file for the most current five-year period.
(9 VAC 5-80-110, 9 VAC 5-80-1180, 9 VAC 5-50-260, 9 VAC 5-50-20 C, and Condition 9 of the 3/28/08 Permit)
3. The permitted facility shall not be required to monitor the nitrogen content of the natural gas fuel (previously required by NSPS Subpart GG). The nitrogen-monitoring requirement has been waived, by the Administrator of the US EPA, in the US EPA custom fuel-monitoring schedule, approved on July 2, 1998.
(9 VAC 5-80-110, 9 VAC 5-80-1180, 9 VAC 5-50-260, 9 VAC 5-50-20, 40 CFR 60.334, and Condition 10 of the 3/28/08 Permit)
4. The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to the combustion turbines:
 - a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance for the turbines.
 - b. Develop an inspection schedule, monthly at a minimum, to insure operational integrity of the turbines and maintain records of inspection results.
 - c. Have available written operating procedures for the turbines. These procedures shall be based on the manufacturer's recommendations, at a minimum, if such recommendations exist.
 - d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance, inspections, and training shall be maintained on site for a period of five (5) years and shall be made available to DEQ personnel upon request.

(9 VAC 5-80-110, 9 VAC 5-40-20, 9 VAC 5-50-20, and Condition 36 of the 3/28/08 Permit)

****Note:** *This condition is being retained in the Title V permit because it is an applicable requirement generally applied to all modified and newly constructed equipment permitted through the NSR permit program.*

Title V Condition

5. The permittee shall perform visible emissions observations (VEO's) on the exhaust stack of each General Electric Model PG7111-EA simple cycle combustion turbine (ES-1, ES-2, ES-3, and ES-4) according to the following schedule:

- a. At least one VEO shall be conducted on each unit that operates for a cumulative total of 20 hours or more during the calendar year.
- b. At least one VEO shall be performed during each 200 hours of unit operation during the calendar year.
- c. At least one VEO shall be performed during any unit operability verification testing conducted during the calendar year.
- d. Each VEO shall be performed for a sufficient period of time to identify the presence of visible emissions. If no visible emissions are observed, no action shall be required. However, if visible emissions are observed, a visible emissions evaluation (VEE) shall be conducted using 40 CFR Part 60, Appendix A, Method 9 for a period of no less than 6 minutes. If the average opacity exceeds 10%, modifications and/or repairs shall be performed to correct the problem and the corrective measures shall be recorded. If such corrective action fails to remedy the opacity problem, a VEE in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be performed for a period of at least 18 minutes to determine compliance with the opacity limits specified in Condition III.A.14 of this permit. The VEE observer shall be Method 9 certified.

(9 VAC 5-80-110)

****Note:** The permit content requirements of the regulations for federal operating permits, 9 VAC 5-80-110, state that the permit should include conditions for periodic monitoring sufficient to demonstrate that the facility is in compliance with the limits of the permit.

CAM Requirements

A Compliance Assurance Monitoring (CAM) Plan for NO_x was included in the application for the facility according to 40 CFR 64.2. This was due to the fact that the four (4) simple cycle combustion turbines each have water injection as a means to control NO_x emissions, are subject to an emission limitation, and have uncontrolled NO_x emissions that are above major source thresholds. They are not exempt as stated in 40 CFR 64.2(b)(2) since they are not “municipally-owned” (i.e. not township or county/city owned). All boilerplate CAM conditions were included in the Title V permit. The permittee shall monitor, operate, calibrate and maintain the water injection controlling the simple cycle combustion turbines according to the following:

Monitoring, Frequency, Records	Performance Criteria	Indicator Range; Averaging Period
<ul style="list-style-type: none">Continuously monitor fuel consumption and the water-to-fuel ratio.Records shall be collected by a computerized system. The system shall collect and retain all relevant data.	<ul style="list-style-type: none">Fuel and water flow meters to have minimum accuracy of 5% and to be calibrated prior to each stack testing event.	<ul style="list-style-type: none">Indicator range: Shown in the table below.Excursion: Water-to-fuel ratio outside the indicator range.Data points shall be collected every minute, averaged over a 1-hour block period.

Indicator Range for Water-to-Fuel Ratio	
Load, percent	Water-to-Fuel Ratio Indicator Range
50	Greater than 0.30
75	Greater than 0.40
100	Greater than 0.60

The indicator range for the water-to-fuel ratio was developed from the results of recent and historical stack test data (including the facility's 1990 initial stack test done in accordance with NSPS, Subpart GG). Operation of the water injection controls and combustion turbines in a manner that each indicator is maintained within the appropriate range will provide a reasonable assurance of compliance with the NO_x emission limits. This CAM Plan is very consistent with/similar to another turbine facility controlling NO_x emissions with water injection (Reg. # 11348) that has already issued their CAM Plan in the facility's Title V permit.

Appendix A

The facility requested that Appendix A be re-worded because it goes beyond what NSPS, Subpart GG requires and is an abnormal recordkeeping process within their system. They also wanted to be consistent with the other turbine Dominion facilities. Therefore, the facility sent in new wording to replace the old wording (as stated below):

No. 2 Fuel Oil Transfers – Darbytown Power Station

Station Process: The station receives fuel oil by truck transport where the fuel oil from the trucks is transferred into one of the station's two 3,125,000 gallon tanks. Prior to receiving oil one of the fuel oil tanks is identified as the receiving tank and is isolated from service per the station's operating procedure. The tank is valved and tagged closed until the "shipment" is completed and the tank is sampled and analyzed per ASTM methods.

Once the station reviews the fuel oil analyses and confirms that the fuel oil quality complies with the Title V air permit limitations then the fuel oil tank is released for service. This methodology is in accordance with 40 CFR 60 Subpart GG. Copies of the analyses along with the truck manifests and associated volumes are maintained at the station.

Fuel Oil 'Shipment' Definition: A 'shipment' or 'transfer' is a series of truck transport loads of oil. The source of oil may be a Dominion or a vendor owned source. Prior to any fuel movement within the Dominion system the Dominion Fuels Contracts Group assures the oil meets each station's fuel oil quality regulatory requirements.

In NSPS, Subpart GG (40 CFR 60.334(i)(1)), it states that testing the fuel oil needs to be done according to specific sections in Appendix D of Part 75. These sections were checked over and it appears that the facility is doing the last one, 2.2.4.3, which is what they are describing in their "updated" wording. Therefore, since no periodic monitoring has been relaxed, this wording change is accepted and has been changed.

C. Recordkeeping

3/28/08 Article 6 NSR permit and NSPS, Subpart GG Conditions:

1. The continuous water to fuel ratio monitor required by this permit, the continuous monitoring data, and the quality assurance data shall, at the discretion of the Board, be used in calculating emissions to determine compliance with the NO_x emission limits and/or relevant emission standards. Each monitor is subject to such data capture requirements and/or quality assurance requirements as specified in this permit and as may be deemed appropriate by the Board (40 CFR 60.13 and 40 CFR 60 Appendix B).
(9 VAC 5-80-110, 9 VAC 5-160-170, and Condition 28 of the 3/28/08 Permit)
2. The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Director, Piedmont Regional Office. These records shall include, but are not limited to:
 - Annual and specific hours of operation of the Inlet Air Conditioning Systems and Wet Compression Systems, annual hours calculated monthly as the sum of each consecutive 12 month period.
 - Continuous megawatt generation rate during the period in which the Inlet Air Conditioning Systems and Wet Compression Systems are in operation.
 - Hourly, monthly, and annual consumption of natural gas and fuel oil. Annual consumption to be calculated monthly as the sum of each consecutive 12 month period. Ratio of water to fuel for each fuel being fired shall accompany the hourly consumption record.
 - Tests of the sulfur content of natural gas being fired in accordance with subpart GG of the NSPS and the US EPA custom fuel monitoring schedule, approved on July 2, 1998.
 - Tests for the sulfur and nitrogen content of all shipments (as defined in Appendix A) of fuel oil delivered to the facility.
 - Calculations to demonstrate compliance with the fuel limitation requirements for any annual period when fuel oil was fired.
 - Monthly and annual calculations of nitrogen oxides, sulfur dioxide, and carbon monoxide emissions based on water/fuel ratios, monitoring and fuel analysis data, annual emissions calculated monthly as the sum of each consecutive 12 month period.
 - Results of all stack tests, visible emission evaluations and performance evaluations.
 - A record of opacity observations, including corrective action or Method 9 observation results.
 - Continuous monitoring system calibrations and calibration checks.
 - Scheduled and unscheduled maintenance of the turbines and associated monitoring systems.
 - Records of operator training.

These records shall be available on site for inspection by the DEQ and shall be current for the most recent (5) years.
(9 VAC 5-80-110, 9 VAC 5-50-50, 40 CFR 60.334-5, and Condition 29 of the 3/28/08 Permit)

D. Testing

3/28/08 Article 6 NSR permit and NSPS, Subpart GG Conditions:

1. The permittee shall test the No.2 distillate fuel oil for sulfur and nitrogen content on each occasion that fuel is transferred (as referenced in Appendix A) to the storage tanks, from any other source or fuel vendor. Fuel oil sulfur content shall be determined using ASTM D2880-78 or another approved ASTM method incorporated in 40 CFR 60 by reference. Fuel oil nitrogen content shall be determined by following current ASTM procedures approved by the Administrator of the US EPA. Initial test methods and changes to test methods used by the permittee to determine sulfur and nitrogen content shall be submitted to and approved by the Piedmont Regional Office (PRO) of the DEQ. Records of fuel oil sulfur and nitrogen content shall be available on site for inspection by DEQ personnel. They shall be kept on file for the most current five year period.
(9 VAC 5-80-110, 9 VAC 5-80-1180, 9 VAC 5-50-260, 9 VAC 5-50-20 C, 40 CFR 60.334-5, and Condition 11 of the 3/28/08 Permit)
2. Stack emission tests shall be conducted for nitrogen oxides from the simple cycle combustion turbines when using the Wet Compression Systems to determine compliance with the emission limits contained in Conditions III.A.11 and 12. These tests shall be conducted on one representative turbine under the following specifications: At ≥ 60 MW load using the wet compression system for (1) when only natural gas is being burned and (2) when only distillate oil is being burned. The tests shall be performed and demonstrate compliance with Conditions III.A.11 and 12 within 60 days after achieving the maximum production rate for the simple cycle combustion turbines when using the Wet Compression Systems but in no event later than 180 days after start-up of the Wet Compression Systems on the simple cycle combustion turbines. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and 9 VAC 5-60-30 and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410 and 9 VAC 5-60-70. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results shall be submitted to the Piedmont Regional Office within 45 days after test completion and shall conform to the test report format enclosed with this permit.
(9 VAC 5-80-110, 9 VAC 5-50-30, 9 VAC 5-80-1200, and 9 VAC 5-50-410, and Condition 25 of the 3/28/08 Permit)
3. Every twenty (20) operating calendar quarters (starting from the initial test completed), or upon request by the DEQ, the permittee shall conduct performance tests for nitrogen oxides from the simple cycle combustion turbines to demonstrate compliance with the emission limits contained in this permit. Results from these tests shall also be used to verify the accuracy of emission factors used in emissions estimates. The details of the tests shall be arranged with the Director, Piedmont Regional Office. The permittee may comply with this condition in accordance with the requirements of 9 VAC 5-140-700 et seq. and 40 CFR 75.
(9 VAC 5-80-110, 9 VAC 5-50-30 G, 9-VAC 5-140-10 et seq., 40 CFR Part 75, and Condition 26 of the 3/28/08 Permit)

****Note:** During draft comments, the facility requested the deletion of the first sentence. This condition is being retained in the Title V permit because it is periodic monitoring required through the Title V to demonstrate compliance with permit limits since the facility is a major source of this pollutant. To make the condition more clear, it was changed from “not less than once during the first 24 months of this permit” to “every twenty (20) operating calendar quarters (starting from the initial test completed)” as stated in 40 CFR 75.19(c)(1)(iv)(D).

****Note:** 20 calendar quarters = 5 years

4. Upon request by the DEQ, the permittee shall conduct performance tests for sulfur dioxide, carbon monoxide, particulate matter, PM-10 and/or volatile organic compounds from the simple cycle combustion turbines to demonstrate compliance with the emission limits contained in this permit. Results from these tests shall also be used to verify the accuracy of emission factors used in emissions estimates. The details of the tests shall be arranged with the Director, Piedmont Regional Office.
(9 VAC 5-80-110, 9 VAC 5-50-30 G, and Condition 26 of the 3/28/08 Permit)
5. Upon request by the DEQ, the permittee shall conduct visible emission evaluations from the simple cycle combustion turbines to demonstrate compliance with the visible emission limits contained in this permit. The details of the tests shall be arranged with the Director, Piedmont Regional Office.
(9 VAC 5-80-110, 9 VAC 5-50-30 G, and Condition 27 of the 3/28/08 Permit)

Title V Boilerplate Condition

6. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the appropriate method(s) in accordance with procedures approved by the DEQ.
(9 VAC 5-80-110)

Facility Wide Condition

7. The permitted facility shall be constructed so as to allow for emissions testing at any time using appropriate methods. Upon request from the Department, test ports shall be provided at the appropriate locations.
(9 VAC 5-80-110, 9 VAC 5-50-30 F, and Condition 12 of the 3/28/08 Permit)

E. Reporting

3/28/08 Article 6 NSR permit and NSPS, Subpart GG Conditions:

1. The permittee shall submit quarterly excess emission reports to the Piedmont Regional Office (PRO) of the DEQ within 30 days after the end of each calendar quarter or semi-annually as needed. Details of the quarterly reports are to be arranged with the Piedmont Regional Office (PRO). Each quarterly report shall cover, at a minimum, the dates included in the calendar quarter and provide the following information for each day in the quarter, report each hour during which the water to fuel ratio fell below that required to demonstrate compliance with the nitrogen oxides permit limit, copy of the written notification and corrective action taken. The report shall include the following for each period described above: start time, duration, actual and required water-to-fuel ratio, fuel type and consumption rate, nitrogen content of fuel oil (if oil-fired), ambient temperature and the simple cycle combustion turbine load. If, during the calendar quarter, there

are no times when the water to fuel injection ratio fell below that required to demonstrate compliance, the permittee shall state in the quarterly report that no such events occurred during the affected calendar quarter.
(9 VAC 5-80-110, 9 VAC 5-170-160, 9 VAC 5-50-50, 40 CFR 60.7, 40 CFR 60.334, and Condition 30 of 3/28/08 Permit)

F. Streamlined Requirements

None.

G. NO_x Budget Trading Program Requirements

The NO_x Budget Trading Program requirements were placed into the original Title V. With this permit renewal, the facility has shown that the four simple cycle combustion turbines are “low mass emissions” (LME) units, as stated in 40 CFR 75.19. Because of this, the facility does not have to have NO_x CEMs. To maintain this classification, it is the owner’s responsibly to limit NO_x emissions from these individual units to less than 100 tons of NO_x annually (October 1 thru September 31) and no more than 50 tons of the allowed annual tons of NO_x during the ozone control period (May 1 thru September 30). As long as the facility sends in the correct reports and recordkeeping on the LME status of the units, they do not have to put on NO_x CEMs. To make this federally enforceable, a condition was placed in this section. In addition, NO_x emissions from the past three years were submitted to show that these units were each under these limits (as shown below):

NO_x Annual Emissions (tons/yr)				
<u>Date</u>	<u>ES-1</u>	<u>ES-2</u>	<u>ES-3</u>	<u>ES-4</u>
2004	4.04	4.39	3.32	3.12
2005	27.13	30.56	26.26	30.33
2006	20.84	18.72	19.76	17.51

H. Clean Air Interstate Rule (CAIR) Requirements

These requirements were added to the Title V permit since the facility is subject to these regulations and to make them federally enforceable. The condition below was placed in the Title V permit:

1. The permittee shall comply with all applicable CAIR requirements (9 VAC 5-140-1010 et seq., 9 VAC 5-140-2010 et seq., 9 VAC 5-140-3010 et seq., and 40 CFR Part 96) by the compliance date in the respective Part of 9 VAC 5 Chapter 140. The CAIR application in Appendix B to this document contains specific conditions and expires upon expiration of this Title V permit.
(9 VAC 5-80-110, 40 CFR Part 96, and 9 VAC 5 Chapter 140)

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

B. Permit Expiration

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.1-20.01:2 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 2-2003”.

This general condition cite(s) the Article(s) that follow(s):

Article 1 (9 VAC 5-80-50 et seq.), Part II of 9 VAC 5 Chapter 80. Federal Operating Permits for Stationary Sources

This general condition cites the sections that follow:

9 VAC 5-80-80. Application

9 VAC 5-80-140. Permit Shield

9 VAC 5-80-150. Action on Permit Applications

F. Failure/Malfunction Reporting

Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

This general condition contains a citation from the Code of Federal Regulations as follows:
40 CFR 60.13 (h). Monitoring Requirements.

J. Permit Modification

This general condition cites the sections that follow:

9 VAC 5-80-50. Applicability, Federal Operating Permit For Stationary Sources

9 VAC 5-80-190. Changes to Permits.

9 VAC 5-80-260. Enforcement.

9 VAC 5-80-1100. Applicability, Permits For New and Modified Stationary Sources

9 VAC 5-80-1790. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas

9 VAC 5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

U. Malfunction as an Affirmative Defense

The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

This general condition cites the sections that follow:

9 VAC 5-20-180. Facility and Control Equipment Maintenance or Malfunction

9 VAC 5-80-110. Permit Content

This general condition cites the regulatory sections that follow:

9 VAC 5-60-70. Designated Emissions Standards

9 VAC 5-80-110. Permit Content

STATE ONLY APPLICABLE REQUIREMENTS

No state only applicable requirements apply to this facility.

FUTURE APPLICABLE REQUIREMENTS

No Future Applicable Requirements have been identified for this facility.

INAPPLICABLE REQUIREMENTS

Citation	Title of Citation	Description of Applicability
9 VAC 5-40-900	Particulate Matter Standard for Fuel Burning Equipment	Conditions III-A-11 and III-A-12 set limits under this emission standard
9 VAC 5-40-930	Sulfur Dioxide Standard for Fuel Burning Equipment	Conditions III-A-11 and III-A-12 set limits under this emission standard
40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	This Subpart does not apply to the combustion turbines since the construction of these units commenced before February 18, 2005.
40 CFR 63, Subpart YYYY	National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines	This Subpart does not apply to the combustion turbines since they are considered existing units and are exempt pursuant to 40 CFR 63.6090(b)(4).

COMPLIANCE PLAN

Not applicable.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air

Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity 9 VAC 5-80-720 C)
IS-1*	Two No. 2 Fuel Oil Storage Tanks	9 VAC 5-80-720B	VOC	3,125,000 gallons each
IS-2	Three Oil/Water Separators	9 VAC 5-80-720B	VOC	350 to 2000 gallons
IS-3	Natural Gas Heaters	9 VAC 5-80-720C	PM, CO, VOC, SO ₂ , NO _x	6.87 MMBtu/hr total
IS-4	Turbine Glycol Cooling Systems (4)	9 VAC 5-80-720B	VOC, HAP	Less than 1000 gallons total
IS-5	Turbine Lube Oil Systems (4)	9 VAC 5-80-720B	VOC	Less than 15,000 gallons total

The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

* Record keeping is required for this unit only (see Condition IV-A-2).

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit will be placed on public notice in the Style Weekly newspaper from April 16, 2008 to May 16, 2008 and the EPA review was from **DRAFT** to **DRAFT**. No comments were received from either reviews.